

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A navigation system comprising:
an information center having a map database, for receiving information about a present vehicle position and a destination from a navigation terminal, searching out an optimum route between the present position and the destination referring to map data in the map database, and generating route guidance data to guide a vehicle to at least one node point on the optimum route;
the navigation terminal inside the vehicle having a separate mobile terminal for wirelessly connecting to a wireless communication network and a separate ITS (Intelligent Transportation System) terminal having a GPS (Global Positioning System) device, for calculating the present position of the vehicle, transmitting the vehicle's current position information from the ITS terminal to the information center, receiving the route guidance data from the information center, determining a notification message regarding the at least one node point from the present position and guidance codes in the route guidance data, and ~~announcing a~~ generating the notification message about the at least one node point by voice referring to a database contained in the navigation terminal, and announcing the notification message in a predetermined period before the vehicle passes through the node point; and
a wireless communication network for connecting the information center to the ~~navigation~~ ITS terminal via the mobile terminal wirelessly.

2. (Original) The navigation system of claim 1, wherein the navigation terminal further provides the notification message about the node point as image data.

Claims 3 to 7 (Cancelled)

8. (Original) The navigation system of claim 1, wherein the information center searches out the optimum route based on traffic information collected in real time as well as the map data.

9. (Original) The navigation system of claim 1, wherein the information center comprises:

- a plurality of sensors installed on roads, for collecting traffic information;
- a first server for generating real-time traffic information by processing the traffic information collected by the sensors in real time;
- a second server for searching out the optimum route between the present vehicle position and the destination based on the map data and the generated real-time traffic information and generating the route guidance data; and
- a third server for connecting to the wireless communication network and transmitting the route guidance data to the wireless communication network.

10. (Original) The navigation system of claim 1, wherein the route guidance data further includes information about road type, link type, and angles to roads at an intersection.

11. (Cancelled)

12. (Currently Amended) A method of guiding a vehicle's travel in a navigation system having an information center with a map database, a navigation terminal inside the vehicle having a separate mobile terminal for wirelessly connecting to a wireless communication network and a separate ITS (Intelligent Transportation System) terminal having a GPS (Global Positioning System) device, for calculating a present position of the vehicle, and the wireless communication network for connecting the information center to the navigation terminal wirelessly, comprising the steps of:

- transmitting information about the present vehicle position and a destination from the navigation terminal to the information center via the wireless communication network;
- searching out an optimum route between the present vehicle position and the destination based on map data from the map database at the information center;
- generating route guidance data for guiding the vehicle to at least one node point on the optimum route at the information center;

transmitting the route guidance data from the information center to the navigation terminal via the wireless communication network;

determining a notification message regarding the at least one node point from the present position and guidance codes in the route guidance data;

generating the notification message regarding the at least one node point referring to a database contained in the navigation terminal; and

announcing a the notification message about the node point by voice in a predetermined period before the vehicle passes through the node point based on the route guidance data at the navigation terminal.

13. (Original) The method of claim 12, further comprising the step of providing the notification message about the node point as image data at the navigation terminal.

14. (Original) The method of claim 12, wherein the optimum route is searched out based on traffic information collected in real time as well as the map data at the information center.

15. (Original) The method of claim 12, wherein the route guidance data further includes information about road type, link type, and angles to roads at an intersection.

16. (Cancelled)

17. (Original) The method of claim 12, further comprising the step of requesting new route guidance data from the navigation terminal when the vehicle strays off the optimum route.

18. (Currently Amended) A method of guiding a vehicle's travel in a navigation system having an information center with a map database, a navigation terminal inside the vehicle, having a separate mobile terminal for connecting to a wireless communication network wirelessly and a separate ITS (Intelligent Transportation System) terminal with a GPS (Global Positioning System) device for calculating a present vehicle position, and the wireless

communication network for connecting the information center to the ITS terminal via the mobile terminal wirelessly, comprising the steps of:

transmitting information about the present vehicle position and a destination from the mobile terminal to the information center via the wireless communication network;

searching out an optimum route between the present vehicle position and the destination based on map data from the map database at the information center;

generating route guidance data for guiding the vehicle to at least one node point on the optimum route at the information center; ~~and~~

transmitting the route guidance data from the information center to the mobile terminal via the wireless communication network;

transmitting the route guidance data from the mobile terminal to the ITS terminal;

determining a notification message regarding the at least one node point from the present position and guidance codes in the route guidance data;

generating the notification message regarding the at least one node point referring to a database contained in the navigation terminal; and

announcing a the notification message about the node point by voice in a predetermined period before the vehicle passes through the node point based on the route guidance data at the ITS terminal.

19. (Original) The method of claim 18, further comprising the step of providing the notification message about the node point as image data at the mobile terminal.

20. (Original) The method of claim 18, further comprising the step of providing the notification message about the node point as image data at the ITS terminal.

21. (Original) The method of claim 18, wherein the optimum route is searched out based on traffic information collected in real time as well as the map data at the information center.

22. (Original) The method of claim 18, wherein the route guidance data further includes information about road type, link type, and angles to roads at an intersection.

23. (Cancelled)

24. (Original) The method of claim 18, further comprising the step of requesting new route guidance data from the navigation terminal when the vehicle strays off the optimum route.

25. (Currently Amended) A method of guiding a vehicle's travel in a navigation system having an information center with a map database, a navigation terminal inside the vehicle having a separate mobile terminal for connecting to a wireless communication network wirelessly and a separate ITS (Intelligent Transportation System) terminal with a GPS (Global Positioning System) device for calculating a present vehicle position, and the wireless communication network for connecting the information center to the ITS terminal via the mobile terminal wirelessly, comprising the steps of:

transmitting information about the present vehicle position and a destination from the ITS terminal to the mobile terminal and the information center via the wireless communication network;

searching out an optimum route between the present vehicle position and the destination based on map data from the map database at the information center;

generating route guidance data for guiding the vehicle to at least one node point on the optimum route at the information center;

transmitting the route guidance data from the information center to the mobile terminal via the wireless communication network;

transmitting the route guidance data from the mobile terminal to the ITS terminal;

determining a notification message regarding the at least one node point from the present position and guidance codes in the route guidance data;

generating the notification message regarding the at least one node point referring to a database contained in the navigation terminal; and

announcing a the notification message about the node point by voice in a predetermined period before the vehicle passes through the node point based on the route guidance data at the ITS terminal.

26. (Original) The method of claim 25, further comprising the step of providing the notification message about the node point as image data at the mobile terminal.

27. (Original) The method of claim 25, further comprising the step of providing the notification message about the node point as image data at the ITS terminal.

28. (Original) The method of claim 25, wherein the optimum route is searched out based on traffic information collected in real time as well as the map data at the information center.

29. (Original) The method of claim 25, wherein the route guidance data further includes information about road type, link type, and angles to roads at an intersection.

30. (Cancelled)

31. (Original) The method of claim 25, further comprising the step of requesting new route guidance data from the navigation terminal when the vehicle strays off the optimum route.

32. (Currently Amended) A mobile terminal comprising a navigation system that processes a conventional call by bi-directional communication with a base station when a first mode is set, requests ~~navigation information~~ route guidance data that satisfies a predetermined condition selected by a user from an information center, and downloads the ~~navigation information~~ the route guidance data regarding a vehicle from the information center when a second mode is set.

33. (Previously Presented) The mobile terminal of claim 32, wherein the downloaded

navigation information is transmitted to an ITS (Intelligent Transportation System) terminal mounted to a moving object.

34. (Previously Presented) The mobile terminal of claim 32, wherein the predetermined condition includes a destination to which the mobile terminal is to be guided.

35. (Previously Presented) The mobile terminal of claim 33, wherein the information center includes a map database that provides navigation information by generating route guidance data according to the current position and destination of the moving object.

36. (Previously Presented) The mobile terminal of claim 35, further comprising a display for displaying the state of call processing in the first mode and displaying route guidance information processed from the route guidance data by the ITS terminal in the second mode.

37. (Previously Presented) The mobile terminal of claim 36, further comprising an input portion for acting as a user interface for call processing in the first mode and a navigation service in the second mode.

38. (Previously Presented) The mobile terminal of claim 37, wherein the input portion is a microphone.

39. (Previously Presented) The mobile terminal of claim 37, wherein the input portion is a touch pad.

40. (Previously Presented) The mobile terminal of claim 37, further comprising a keypad for acting as a user interface for call processing in the first mode and a navigation service in the second mode, and key assignment memory areas for assigning keys of the keypad for the first and second modes.

41. (Currently Amended) A mobile terminal that transmits data received from an

information center by wireless communication to an ITS (Intelligent Transportation System) terminal, and transmits data received from the ITS terminal to the information center, comprising:

an input portion for acting as a user interface for a route guiding service in a navigation mode selected by the user; and

a display for displaying route guidance ~~information~~ data about a vehicle received from the ITS terminal.

42. (Previously Presented) The mobile terminal of claim 41, wherein when a call is sensed in the navigation mode, the navigation mode is transitioned to a voice call mode and the call is processed in the voice call mode.

43. (Previously Presented) The method of claim 18, wherein input of information about the present vehicle position and the destination is carried out by a user selection in a navigation mode.

44. (Previously Presented) The method of claim 43, wherein the user selection is carried out by input of a Menu key.

45. (Previously Presented) The method of claim 43, wherein the user selection is carried out by input of a key dedicated to transitioning to the navigation mode.

46. (Currently Amended) The navigation system of claim 2 6, wherein the mobile terminal has a Menu key by which a navigation mode is set.

47. (Currently Amended) The navigation system of claim 2 6, wherein the mobile terminal has a key dedicated to transitioning to a navigation mode.

48. (Previously Presented) The navigation system of claim 47, wherein the key dedicated to transitioning to the navigation mode is used as a guide key during driving.

49. (Previously Presented) The navigation system as in Claim 1, wherein the mobile terminal is removable from the navigation terminal.

50. (Previously Presented) The navigation system as in Claim 1, wherein the mobile terminal provides a voice call service.

51. (Previously Presented) The method as in Claim 12, wherein the mobile terminal is removable from the navigation terminal.

52. (Previously Presented) The method as in Claim 12, wherein the mobile terminal provides a voice call service.

53. (New) The mobile terminal of Claim 32, wherein the route guidance data includes bearing at intersection and x and y coordinates in mesh.

54. (New) The mobile terminal of Claim 32, wherein the route guidance data is transmitted to an ITS terminal which is connected to the mobile terminal.

55. (New) The mobile terminal of Claim 54, wherein a travel direction of the vehicle determined by the bearing at intersection in the ITS terminal.

56. (New) The mobile terminal of Claim 54, wherein the ITS terminal determines distance from present position of the vehicle to the intersection using the x and y coordinates in a mesh.

57. (New) The mobile terminal of Claim 32, wherein the second mode is selected when a navigation menu is selected.

58. (New) The mobile terminal of Claim 32, wherein the second mode is selected

when a key designated for navigation is pressed.

59. (New) The navigation system of Claim 1, wherein the route guidance data includes bearing at intersection and x and y coordinates in a mesh.

60. (New) The navigation system of Claim 59, wherein a travel direction of the vehicle is determined by the bearing at intersection in the ITS terminal.

61. (New) The navigation system of Claim 59, wherein the ITS terminal determines distance from present position of the vehicle to the intersection using the x and y coordinates in a mesh.

62. (New) The mobile terminal of Claim 1, wherein the route guidance data includes bearing at intersection and x and y coordinates in mesh.

63. (New) The mobile terminal of Claim 62, wherein a travel direction of the vehicle determined by the bearing at intersection in the ITS terminal.

64. (New) The mobile terminal of Claim 62, wherein the ITS terminal determines distance from present position of the vehicle to the intersection using the x and y coordinates in a mesh.

65. (New) The mobile terminal of Claim 12, wherein the route guidance data includes bearing at intersection and x and y coordinates in mesh.

66. (New) The mobile terminal of Claim 65, wherein a travel direction of the vehicle determined by the bearing at intersection in the ITS terminal.

67. (New) The mobile terminal of Claim 65, wherein the ITS terminal determines distance from present position of the vehicle to the intersection using the x and y coordinates in a

mesh.

68. (New) The mobile terminal of Claim 18, wherein the route guidance data includes bearing at intersection and x and y coordinates in mesh.

69. (New) The mobile terminal of Claim 68, wherein a travel direction of the vehicle determined by the bearing at intersection in the ITS terminal.

70. (New) The mobile terminal of Claim 68, wherein the ITS terminal determines distance from present position of the vehicle to the intersection using the x and y coordinates in a mesh.

71. (New) The mobile terminal of Claim 25, wherein the route guidance data includes bearing at intersection and x and y coordinates in mesh.

72. (New) The mobile terminal of Claim 71, wherein a travel direction of the vehicle determined by the bearing at intersection in the ITS terminal.

73. (New) The mobile terminal of Claim 71, wherein the ITS terminal determines distance from present position of the vehicle to the intersection using the x and y coordinates in a mesh.

74. (New) The mobile terminal of Claim 41, wherein the route guidance data includes bearing at intersection and x and y coordinates in mesh.

75. (New) The mobile terminal of Claim 74, wherein a travel direction of the vehicle determined by the bearing at intersection in the ITS terminal.

76. (New) The mobile terminal of Claim 74, wherein the ITS terminal determines distance from present position of the vehicle to the intersection using the x and y coordinates in a

mesh.